Notes in Support of Discussions at JEF Specialists Meeting on Fission Products Held at the NEA Databank Paris, June 1997.

N T GULLIFORD

The JEF-2.2 Nuclear Data Library

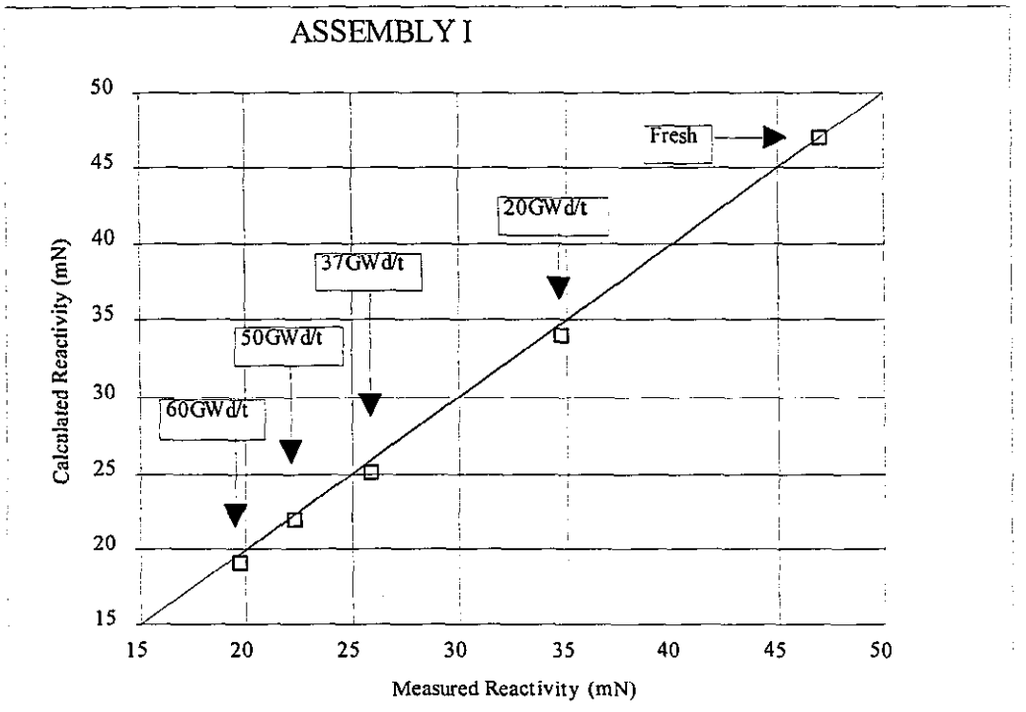
JEF 2-2

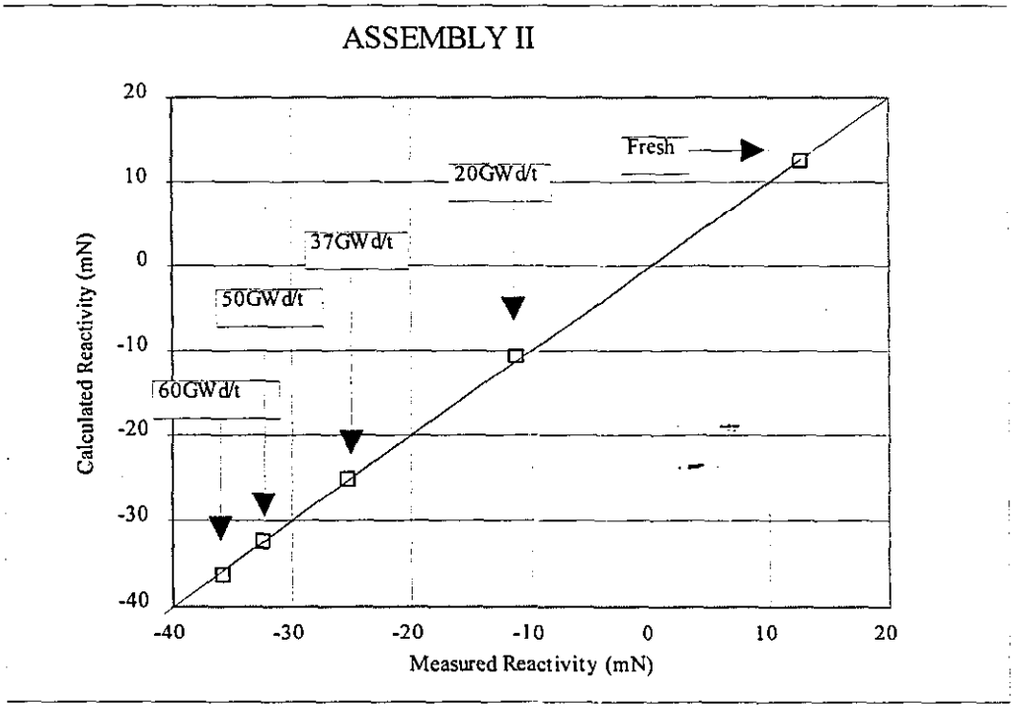
Top 24 Fission Products in Thermal Reactor

For purposes of comparison only (not based on JEF data)
Cooling Period is 15years

Nuclide	half-life	Contribution to Total FP Worth	Relative Contribution	
			Thermal	Resonance
Gd155	Stable	18.2%	100%	0%
Rh103	Stable	11.5%	20%	80%
Nd143	Stable	10.9%	77%	23%
Sm149	Stable	7.9%	98%	2%
Cs133	Stable	7.9%	11%	89%
Xe131	Stable	6.3%	16%	84%
Sm152	Stable	4.5%	11%	89%
Sm151	90.000 Y	3.9%	91%	9%
Nd145	Stable	3.2%	25%	75%
Eu153	Stable	3.1%	35%	65%
Sm147	1.1E+11 Y	2.5%	13%	87%
Mo 95	Stable	2.2%	20%	80%
Tc 99	2.1E+05 Y	1.9%	38%	62%
Sm150	Stable	1.7%	43%	57%
Ag109	Stable	1.3%	8%	92%
Ru101	Stable	1.2%	11%	89%
Pd105	Stable	0.8%	27%	73%
Kr 83	Stable	0.7%	63%	37%
Pr141	Stable	0.7%	58%	42%
La139	Stable	0.6%	54%	46%
Pd108	Stable	0.6%	7%	93%
Zr 93	9.5E+05 Y	0.5%	25%	75%
Cs135	3.0E+06 Y	0.5%	21%	79%
Gd157	Stable	0.4%	100%	0%

Summary of CERES Phase I Analysis on Irradiated Fuel Sample Reactivity Worth: WIMS7/JEF2.2





Note:

1. Sample reactivity in Assembly I is sensitive to fission events only
2. Sample reactivity in Assembly II is sensitive to fission + absorption events

CERES International Collaboration

Comparison of WIMS/JEF2.2 Spent Fuel Inventory Prediction with CERES PIE

Isotope	C/E	
	US	CERES III
Mo95	-	1.12
Tc99	1.11	1.10
Ru101	-	1.22
Rh103	-	1.30
Ag109	-	1.81
Cs133	0.98	0.97
Cs135	1.03	-
Nd143	1.03	1.04
Nd144	0.97	-
Nd145	1.00	1.03
Nd146	1.01	-
Sm147	0.91	0.80
Sm148	0.9	-
Sm149	0.49	1.06
Nd150	1.04	-
Sm150	0.88	1.03
Sm151	1.29	-
Sm152	1.12	1.15
Eu153	1.05	1.04
Eu155	1.20	-
Gd155	1.07	1.09

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Summary of CERES Fission Product Analysis

FP	C-E/E			JENDL-3.2 vs JEF-2.2?
	DIMPLE Assembly II		MINERVE	
	ENDF/B V	JEF2.2	JEF2.2	
Sm147	-2%	1%	3%	No significant change
Sm149	-3%	-5%	-2%	No significant change
Sm152	-1%	1%	-2%	Worse
Nd143	-1%	-6%	-4%	No significant change
Nd145	1%	-1%	0%	Worse
Ag109	4%	2%	3%	No significant change
Gd155	4%	4%	2%	No significant change
Tc99	5%	7%	-3%	Conflicting exp. results
Mo95	19%	6%	11%	Worse
Rh103	16%	11%	11%	No significant change
Cs133 (II)	10%	11%	9%	Better
Cs133 (III)	12%	12%	7%	-
Eu153	19%	-9%	-10%	No significant change

Notes:
1. Eu153 result has to be corrected for Eu151 in sample.
2. A second batch of Cs133 measured in CERES Phase III
3. Results for ENDF are from SCALE analysis
4. Results for JEF are from WIMS7 analysis